This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-5. (Cancelled)

6. (Currently Amended) Surface carrying a linker system according to claim ~~1~~21.

7. (Currently Amended) ~~Surface according to claim 6~~ A surface carrying a linker system comprising a compound for activating surfaces for bioconjugation having the following general formula (I):

$$X\text{-}[(Y_1)_i\text{-}Q\text{-}(Y_2)_j]_k\text{-}Z \quad (I)$$

wherein:

X is a reactive group capable of covalently binding to a surface and is selected from the group consisting of a SiW_3 group with W being a hydrolyzable atom or group, an anthrathione group or a derivative thereof, an anthraquinone group or a derivative thereof, and a benzophenone group or a derivative thereof;

Z is a reactive group capable of covalently binding to a biomolecule, is capable of nucleophilic substitution reactions, nucleophilic addition reactions, Diels-Alder reactions or radical substitutions, and is selected from the group consisting of a diene group, a dienophilic group, an aldehyde group, a hydroxyl group, a carboxylic acid group, an active ester group, an amino group, a thiol group, an aziridine group, an isocyanate group, an isothiocyanate group, an azide group, and a reactive leaving group;

X is not Z;

Y_1 and Y_2 are, independently from each other, CR_1R_2;

R_1 and R_2 are, independently from each other, H, C_1-C_4 alkyl, C_1-C_4 alkoxy or C_1-C_4 acyloxy;

i, j, and k are, independently from each other, an integer in the range from 1 to 10;

the total number of C atoms in Y_1 and Y_2, the C atoms of R_1 and R_2 not included, is in the range of 2 to 100;

Q is a hydrophilic atom or group selected from the group consisting of O, NH, C=O, O-C=O and CR_3R_4;

R_3 and R_4 are, independently from each other, selected from the group consisting of H, OH, C_1-C_4 alkoxy and C_1-C_4 acyloxy; and

R_3 and R_4 are not H at the same time;

wherein when Q = NH, Z is not NH_2;

wherein when $k > 1$, the Q's for each $[(Y_1)_i\text{-}Q\text{-}(Y_2)_j]_k$ are independently selected from each other; and

wherein ~~said~~ the linker system forms a patterned array.

8. (Previously Presented) Surface according to claim 6 , wherein said surface is selected from the group consisting of a SiO_2 surface of a silicon wafer, glass, quartz, fused silica, gold and a polymer.

9. (Currently Amended) ~~Surface according to any of claim 6 ,~~ A surface carrying a linker system comprising a compound for activating surfaces for bioconjugation having the following general formula (I):

$$X\text{-}[(Y_1)_i\text{-}Q\text{-}(Y_2)_j]_k\text{-}Z \quad (I)$$

wherein:

X is a reactive group capable of covalently binding to a surface and is selected from the group consisting of a SiW_3 group with W being a hydrolyzable atom or group, an anthrathione group or a derivative thereof, an anthraquinone group or a derivative thereof, and a benzophenone group or a derivative thereof;

Z is a reactive group capable of covalently binding to a biomolecule, is capable of nucleophilic substitution reactions, nucleophilic addition reactions, Diels-Alder reactions or radical substitutions, and is selected from the group consisting of a diene group, a dienophilic group, an aldehyde group, a hydroxyl group, a carboxylic acid group, an active ester group, an amino group, a thiol group, an aziridine group, an isocyanate group, an isothiocyanate group, an azide group, and a reactive leaving group;

X is not Z;

Y_1 and Y_2 are, independently from each other, CR_1R_2;

R_1 and R_2 are, independently from each other, H, C_1-C_4 alkyl, C_1-C_4 alkoxy or C_1-C_4 acyloxy;

i, j, and k are, independently from each other, an integer in the range from 1 to 10;

the total number of C atoms in Y_1 and Y_2, the C atoms of R_1 and R_2 not included, is in the range of 2 to 100;

Q is a hydrophilic atom or group selected from the group consisting of O, NH, C=O, O-C=O and CR_3R_4;

R_3 and R_4 are, independently from each other, selected from the group consisting of H, OH, C_1-C_4 alkoxy and C_1-C_4 acyloxy; and

R_3 and R_4 are not H at the same time;

wherein when Q = NH, Z is not NH_2;

wherein when $k > 1$, the Q's for each $[(Y_1)_i\text{-}Q\text{-}(Y_2)_j]_k$ are independently selected from each other; and

wherein ~~said~~ the linker system is covalently bonded to a biomolecule.

10. (Original) Surface according to claim 9 wherein said biomolecule is a partner of a specifically interacting system of complementary binding partners.

11. (Original) Surface according to claim 10 wherein said specifically interacting system of complementary binding partners is based on nucleic acid/complementary nucleic acid, peptide nucleic acid/nucleic acid, enzyme/substrate, receptor/effector, lectin/sugar, antibody/antigen, avidin/biotin or streptavidin/biotin interaction.

12. (Original) Surface according to claim 11 wherein said nucleic acid is a DNA or RNA.

13. (Original) Surface according to claim 12 wherein said DNA or RNA is an oligonucleotide or an aptamer.

14. (Original) Surface according to claim 11 wherein said antibody is a polyclonal, monoclonal, chimeric or single-chain antibody or a functional fragment or derivative of such antibodies.

15. (Previously Presented) Process for the detection of a biomolecule which is a partner of a specifically interacting system of complementary binding partners, comprising the steps of:

a) contacting a surface according to claim 10 with a sample suspected to contain the complementary binding partner,

b) removing non-specifically bound sample components in a washing step, and

c) detecting specifically bound sample components.

16. (Currently Amended) Process according to claim 15 wherein for said detecting, a colored, fluorescent, bioluminescent, chemoluminescent, ~~phosporescent~~phosphorescent or radioactive label; an enzyme; an antibody or a functional fragment or derivative thereof, a protein A/gold based system; a biotin/avidin/streptavidin based system; or an enzyme electrode based system is used.

17. (Previously Presented) Process for the isolation of a biomolecule which is a partner of a specifically interacting system of complementary binding partners, comprising the steps of:

a) contacting a surface according to claim 10 with a sample suspected to contain the biomolecule complementary binding partner,

b) removing non-specifically bound sample components in a washing step, and, optionally,

c) eluting specifically bound sample components.

18. (Previously Presented) A method of affinity chromatography comprising the steps of:

providing a surface according to claim 10 as an affinity matrix; and

performing affinity chromatography with the affinity matrix.

19. (Previously Presented) A method of detecting a biomolecule comprising the steps of:

providing a sensor chip or biochip comprising a surface according to claim 10 ; and detecting a biomolecule with the sensor chip or biochip.

20. (Previously Presented) Medical or diagnostic instrument comprising a surface according to claim 10.

21. (Currently Amended) A compound for activating surfaces for bioconjugation having the following general formula (I):

$$X\text{-}[(Y_1)_i\text{-}Q\text{-}(Y_2)_j]_k\text{-}Z \quad (I)$$

wherein:

X is a reactive group capable of covalently binding to a surface and is selected from the group consisting of a SiW_3 group with W being a hydrolyzable atom or group, an anthrathione group or a derivative thereof, an anthraquinone group or a derivative thereof, and a benzophenone group or a derivative thereof;

Z is a reactive group capable of covalently binding to a biomolecule, is capable of nucleophilic substitution reactions, nucleophilic addition reactions, Diels-Alder reactions or radical substitutions, and is selected from the group consisting of a diene group, a dienophilic group, an aldehyde group, a hydroxyl group, a carboxylic acid group, an active ester group, an amino group, a thiol group, an aziridine group, an isocyanate group, an isothiocyanate group, an azide group, and a reactive leaving group;

X is not Z;

Y_1 and Y_2 are, independently from each other, CR_1R_2;

R_1 and R_2 are, independently from each other, H, C_1-C_4 alkyl, C_1-C_4 alkoxy or C_1-C_4 acyloxy;

i, j, and k are, independently from each other, an integer in the range from 1 to 10;

the total number of C atoms in Y_1 and Y_2, the C atoms of R_1 and R_2 not included, is in the range of 2 to 100;

Q is a hydrophilic atom or group selected from the group consisting of O, NH, C=O, O-C=O and CR_3R_4;

R_3 and R_4 are, independently from each other, selected from the group consisting of H, OH, C_1-C_4 alkoxy and C_1-C_4 acyloxy; and

R_3 and R_4 are not H at the same time;

wherein when Q = NH, Z is not NH_2;

wherein when k > 1, the Q's for each $[(Y_1)_i$-Q-$(Y_2)_j]_k$ are independently selected from each other;

wherein when Z comprises a silane, X comprises a photocrosslinker; and

wherein when Z comprises a photocrosslinker, X comprises a reactive group.

22. (Previously Presented) A process for the detection of a biomolecule, comprising the steps of:

(a) providing a surface bound to a linker molecule in a patterned array, the linker molecule being covalently bound to a biomolecule,

the linker molecule having the following general formula (I):

$$X\text{-}[(Y_1)_i\text{-}Q\text{-}(Y_2)_j]_k\text{-}Z \quad (I)$$

wherein:

X is a reactive group capable of covalently binding to a surface and is selected from the group consisting of a SiW_3 group with W being a hydrolyzable atom or group, an anthrathione group or a derivative thereof, an anthraquinone group or a derivative thereof, and a benzophenone group or a derivative thereof;

Z is a reactive group capable of covalently binding to a biomolecule, is capable of nucleophilic substitution reactions, nucleophilic addition reactions, Diels-Alder reactions or radical substitutions, and is selected from the group consisting of a diene group, a dienophilic group, an aldehyde group, a hydroxyl group, a carboxylic acid group, an active ester group, an amino group, a thiol group, an aziridine group, an isocyanate group, an isothiocyanate group, an azide group, and a reactive leaving group;

X is not Z;

Y_1 and Y_2 are, independently from each other, CR_1R_2;

R_1 and R_2 are, independently from each other, H, C_1-C_4 alkyl, C_1-C_4 alkoxy or C_1-C_4 acyloxy;

i, j, and k are, independently from each other, an integer in the range from 1 to 10;

the total number of C atoms in Y_1 and Y_2, the C atoms of R_1 and R_2 not included, is in the range of 2 to 100;

Q is a hydrophilic atom or group selected from the group consisting of O, NH, C=O, O-C=O and CR_3R_4;

R_3 and R_4 are, independently from each other, selected from the group consisting of H, OH, C_1-C_4 alkoxy and C_1-C_4 acyloxy; and

R_3 and R_4 are not H at the same time;

wherein when Q = NH, Z is not NH_2;

wherein when $k > 1$, the Q's for each $[(Y_1)_i\text{-}Q\text{-}(Y_2)_j]_k$ are independently selected from each other; and

wherein the biomolecule is a partner of one or more specifically interacting complementary binding partners based on nucleic acid/complementary nucleic acid, peptide nucleic acid/nucleic acid, enzyme/substrate, receptor/effector, lectin/sugar, antibody/antigen, avidin/biotin or streptavidin/biotin interaction;

(b) contacting the surface with a sample to be tested;

(c) removing non-specifically bound sample components in a washing step; and

(d) detecting specifically bound sample components.

23. (Previously Presented) The method of claim 22, wherein said surface comprises a silicon oxide or gold.